



Modular 3D Printer Electronics Enclosure

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Summary

Modular electronics enclosure for 3D printer to house the Main board, Bed & Chamber Heater SSR's, Screen, Wiring loom

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[raspberrypi](#) [ssr](#) [gx16](#) [paneldue7i](#) [duet2wifi](#)

This is a modular electronics case for numerous 3d printer electronics.

There are blank STL & 3MF files for the components that can be remodeled and customized to meet your requirements. It requires Brass Threaded inserts and screws to secure all together

M4: 8 Case Top to Case Base.

M4: 2 Mainboard Stand Top to screw The Mainboard Bracket into.

M4: 4 Mainboard Bracket to screw your Controller Main Board into (M3 would have been better)

M4: 4-6 Case Base 6 Stand Off's to secure Main Board Stand to Case Base.

M4: 2-4 Case Base: Heated Bed SSR x 2 and Heated Chamber SSR x 2.

M2: 4 Front Panel for Duet PannelDue 7" Installation.

I print in ASA/ABS for strength and heat resistance Carbon Fiber PLA may also work but I would not recommend it if you don't install the case fan or live in a hot climate with SSR's installed. Its designed to print with no supports apart from the PanelDue 7" front panel which needs minimal support for the SD Card hole. It just fits in a Bambu X1C Print bed of 256 x 256. Print warping will be your main challenge!

4 x Push fit Feet require to be printed in TPU

Main Board Bracket Stand & Bracket##

Can be modded to add extra Raspberry Pi on Expansion board support using the 2 additional Standoffs on the Case Base. You can expand the current bracket stand (uses 4 of the available 6 Stand Offs) to add a stand for a Raspberry Pi in addition to the Main Board Stand so you can run Klipper as well. I plan to do this, but so far just have the Duet2 WiFi so only included the single card Main Board Bracket stand at the moment. the stand is modular so you can design your own main board plate to attach to the stand if you don't have a Duet 2 Wifi. You just need to make sure the two screw holes are 80-mm apart to screw into the stands 2 x M4 Brass Threaded Inserts. There is enough space for any controller board I have seen to date.

Case Back

This can be customized to provide your preferred wiring loom connectors and power connector. I personally prefer GX16 Connectors with square Base plates that can be screwed into the back plate and don't twist and move in use like the ones Creality use on their CR10 printers. I include my GX16 version with support for;

X Axis: 6 Pin (4 - A&B Phase Stepper + 2-EndStop)

Y Axis: 6 Pin (4 - A&B Phase Stepper + 2-EndStop)

Z Axis: 8 Pin (2 x 4 - A&B Phase Stepper - Dual Z Axis Stepper motors)

Extruder: 6 Pin (4 - 4 - A&B Phase Stepper + 2 Filament Stop)

ToolHead: 8 Pin (2 - BLTouch Zstop + 3 - BLTouch + 3 - Spare e.g. Revo Heat break Sensor)

HeatedBed: 4 Pin (2 - 240V AC Bed Heater Element + 2 - Bed Thermistor)

Enclosure: 4 Pin (2 - 240V AC Bed Heater Element + 2 - Chamber Thermistor)

HotEnd: 8 Pin (2 - 24V DC HotEnd Heater + 2 - Hot End Thermistor + 2 - Part Fan + 2 Cool Fan)

Case Front

This can be customized for any touch screen you prefer. I used a PanelDue 7" with Card Reader Extender and it was a squeeze but just fitted in the

space. It includes holes for the Erase and Rest buttons + Speaker. A blanking plate 3MF is provided for customization to your screen choice. If you don't use a screen you can use the blank backing plate or customize the 3MF for your screen choice.

Case Front Lower

There is a blank backing plate if you prefer to have the On/Off switch on the back next to the Power Plug. If not I include a version and switch I used to have the On/Off switch on the front of the case.

Case Base

Includes all the holes for the installation of industry standard 24V Meanwel power supplies. These you screw from underneath via the M4 Holes. There are fan inlets that support the PSU's fans that suck air in from the bottom and push out of the top. This is why you must install the TPU case feet to allow air to flow into the case.

Case Top

Includes 40mm Case fan in the top that supports the bottom to top airflow of the PSU Fans.

Note: Some of the photos are of earlier iterations where I have since added 8 screws and supports in the case top, 6 Standoffs for the Mainboard stand to be expanded to install a slot for an additional Raspberry Pi Klipper board. I also added a slot for a SD Card Extender in the front of the case & added a dedicated Power switch on the front of the case instead of a Power socket and switch combo on the back of the case.

Assembly

Start with the base and screw in the PSU and SSR's.

Then screw in the Mainboard stand that sits over the PSU.

Attach the Mainboard bracket to the Mainboard stand, the screw in the mainboard to the bracket.

Connect all the wiring loom to the Case Back and installed connectors.

Connect wiring to the Case Front Base (if using Front switch). Then connect all the internal wiring to the back of the Case Back, SSR's and PSU.

The Case Front Base and Case Back slides into slots on the Case Base.

Slide the Front panel into Case Top.

Lastly slide the Case top onto the assembled case base, front and back panels.

Then flip the case over onto its top and screw in the last 8 M4 screws to secure the case base to the case top.

My BOM

PSU Standard formactor

<https://e3d-online.com/products/24v-power-supply-16-5a-400w?variant=31134365089851>

IEC C14 3-Pin Male Mains Power Inlet Socket - 10A

<https://www.ebay.co.uk/itm/132609241652>

Rocker Switch 16A 240V, 20A 125V RED ON-OFF Double Pole 4 Pin Illuminated C4

<https://www.ebay.co.uk/itm/225601966846?var=524714114409>

SD Card Extension 25cm TF Micro SD To Micro Cable Adapter Extender

<https://www.ebay.co.uk/itm/195798971325>

Aviation Plug 2 3 4 5 6 7 Pin 16mm GX16 Metal Panel Cable Connector male female

<https://www.ebay.co.uk/itm/284008488393?var=585698785392>

3D Printer Part Hot Melt Knurl Injection-molding Embedded Metal Insert Nut Kit

[https://www.ebay.co.uk/itm/134883108138?](https://www.ebay.co.uk/itm/134883108138?hash=item1f67a8e52a:g:OzoAAOSwY-Jlm-6E&amdata=enc%3AAQAIAAABIKXVEAgnX5YkQ9ljrW2PSaHqH1q%2FGfqU4jEtxzlkyqYw)

[hash=item1f67a8e52a:g:OzoAAOSwY-](https://www.ebay.co.uk/itm/134883108138?hash=item1f67a8e52a:g:OzoAAOSwY-Jlm-6E&amdata=enc%3AAQAIAAABIKXVEAgnX5YkQ9ljrW2PSaHqH1q%2FGfqU4jEtxzlkyqYw)

[Jlm-6E&amdata=enc%3AAQAIAAABIKXVEAgnX5YkQ9ljrW2PSaHqH1q%2FGfqU4jEtxzlkyqYw](https://www.ebay.co.uk/itm/134883108138?hash=item1f67a8e52a:g:OzoAAOSwY-Jlm-6E&amdata=enc%3AAQAIAAABIKXVEAgnX5YkQ9ljrW2PSaHqH1q%2FGfqU4jEtxzlkyqYw)

PCS Kit Thread Brass Threaded Insert Embedment Nut M2 M3 M4 For 3D Printer

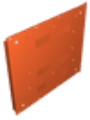
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[_trkparms=amclsrc%3DITM%26aid%3D1110006%26algo%3DHOMESPLICE.SIM%26ao](https://www.ebay.co.uk/itm/335133521201?_trkparms=amclsrc%3DITM%26aid%3D1110006%26algo%3DHOMESPLICE.SIM%26ao)

Model files



casetop.stl



casebase.stl



frontpanelpaneldue7in.stl



frontpanelblank.stl



frontpanelblank.3mf



frontbasepanelpowerswitch.stl



frontbasepanelblank.stl



frontbasepanelblank.3mf



casebackgx16connectors.stl



casebackblank.stl



casebackblank.3mf



mainboardstand-duet2wifibracket.stl



mainboardstand.stl



casefoot.stl

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